

Trend Study 10-5-00

Study site name: Willow Flat .

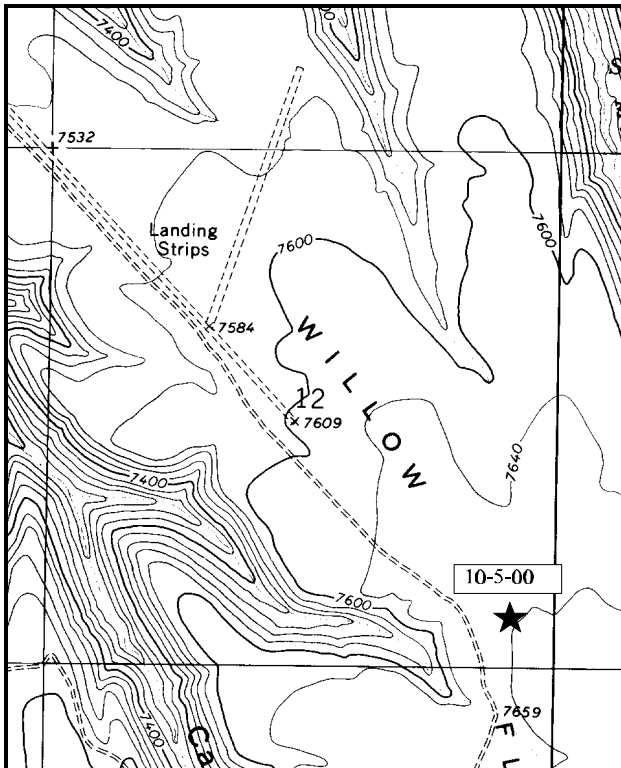
Range type: Big Sagebrush-Grass .

Compass bearing: frequency baseline 350°M.

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

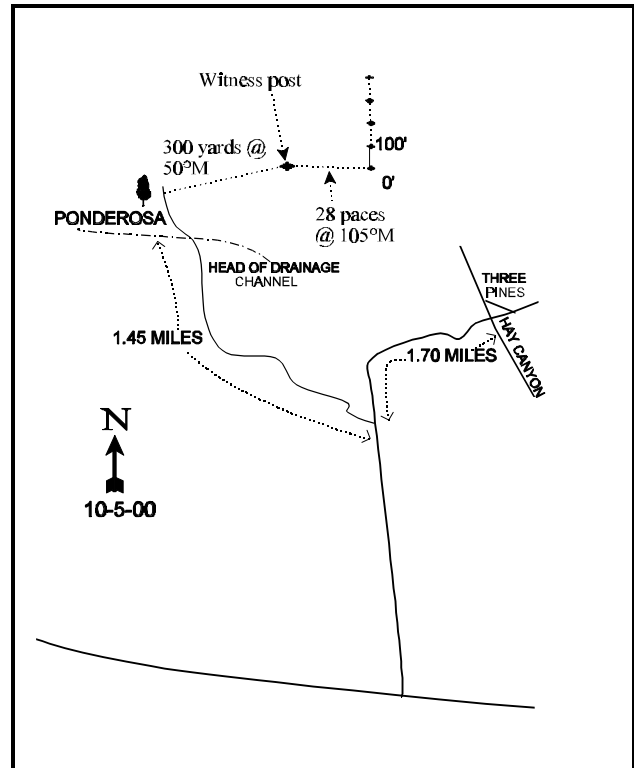
LOCATION DESCRIPTION

From the intersection of the Seep Ridge and Book Cliff Divide road, proceed west along the divide for 9.4 miles to the major Three Pines - Hay Canyon intersection. Continue straight for 1.7 miles to a road to the right to Willow Flat. Turn right here and go 1.45 miles until you see a large ponderosa pine (with other conifers at the head of a small canyon) on the left side of the road. From the ponderosa, walk 300 yards at 50°M to a full high witness post. From the witness post walk 28 paces at 105°M to the 0-foot baseline stake. The frequency baseline is marked by green steel fenceposts, 12 to 18 inches in height.



Map Name: Cedar Camp Canyon

Township 16S, Range 22E, Section 12



Diagrammatic Sketch

UTM. 4364798.520 N, 635034.481 E

DISCUSSION

Trend Study No. 10-5 (16A-5)

The Willow Flat trend study samples a sprayed area of state land similar to that monitored by study number 10-4, Wirefence Point. The area is used by deer, elk and livestock during the summer. Pellet group transect data from 2000 estimated 6 deer days use/acre (15 ddu/ha), 32 elk days use/acre (79 edu/ha), and 8 cow days use/acre (20 cdu/ha). Elevation is 7,700 feet with a slight westerly aspect on nearly level terrain.

Soils at the site are of clay loam texture with an average temperature of 52°F at 15 inches. Effective rooting depth is estimated at nearly 13 inches. Soil reaction is neutral (pH of 7.1) with very low phosphorus (1.8 ppm) as 10 ppm has been determined necessary for normal plant growth and development. The soil appears to be fairly uniform in depth down to 13 inches with a hard pan being present below that. This layer may be restrictive to roots. Currently, erosion appears light with some evidence of pedestaling and overland flow being noted in 2000. Most of the shrub interspaces are bare with the majority of the preferred herbaceous species being protected under shrub crowns. A small gully exists near the site, although at the present time it appears to be healing with small grasses and forbs becoming established within it's banks.

Mountain big sagebrush is the dominant species on the Willow Flat site even with the spraying treatment. At the time of initial study establishment in 1982, there was a high percentage of dead sagebrush from the original spraying treatment, especially along the baseline. However, with the death of many adult plants, there were many "safe sites" for shrub establishment as evidenced by a very large number of sagebrush seedlings (5,200 per/acre) in 1982. Density was estimated at 2,533 plants/acre, with 87% of these being mature. In 1988, estimated sagebrush density increased dramatically to 16,800 plants/acre, due to an sudden increase in the number of young plants (15,200 plants/acre). However, the percentage of mature plants in the population declined to only 8%, with the percentage of young making up 90% of the population. Estimated sagebrush cover in 1988 ranged from 3 to 13%, depending on the extent of the kill, with an overall average cover of 8%. During the 1995 reading, there were an estimated 8,840 plants/acre, 43% of which were classified as young. The number of mature plants increased to 56% of the population, indicating a more stable population. This change in sagebrush density and age class composition from 1988 to 1995 can be attributed in part to the much larger sample size utilized in 1995 which better estimates browse populations with clumped and/or discontinuous distributions. In 1995, percent decadency remained low, vigor was good, and use on sagebrush was mostly light. In 2000, the sagebrush population was estimated at 10,060 plants/acre, with continued high recruitment from the young age class (29%). Sagebrush makes up 86% of the browse cover and 54% of the total vegetative cover at the site. Although percent decadency increased from 1% to 15%, vigor remains good, and use remains light to moderate.

Dwarf rabbitbrush is also abundant. These short prostrate shrubs have declined from a high of 10,599 plants/acre in 1982 to 5,340 in 2000. This large change in density could be because of the much larger sample size and better sample distribution, especially for species that have clumped distributions. Use remains light to moderate on dwarf rabbitbrush as was the case in 1995. Other browse encountered on the site include rubber rabbitbrush, low rabbitbrush, broom snakeweed, and snowberry. Although, none of these are particularly abundant. Pinyon and juniper trees appear to be encroaching into the sagebrush flat, with trees still relatively sparse. Point-center quarter data from 2000 estimated 6 pinyon and 27 juniper trees/acre. Most of these are younger trees reaching 5-6 feet in height.

Eight species of perennial grasses were identified in 2000, providing 48% of the herbaceous cover. The most abundant grasses include: thickspike wheatgrass, mutton bluegrass, Sandberg bluegrass, and prairie junegrass. Forbs have been numerous and diverse at the Willow Flat site since it's establishment. Thirty-nine species, most of which are perennial, have been sampled in at least one reading since 1988. However, due to drought, forbs

declined by nearly half in both nested frequency and average cover in 2000. This is somewhat of a concern as these herbaceous species are important on this summer range. Yet, the abundance of forbs should increase with return to normal precipitation patterns in the future.

1982 APPARENT TREND ASSESSMENT

Soil trend appears stable but somewhat precarious. The heavy rains that occurred throughout the summer of 1982 may have resulted in above normal erosion. Vegetatively, the site appears to be returning to big sagebrush dominance at a fairly rapid rate. To a point, this is desirable but hopefully, density can be curtailed enough that a good grass cover can be maintained and a variety of desirable forbs can develop.

1988 TREND ASSESSMENT

Basal vegetative cover increased in 1988 which is consistent with the change in the herbaceous understory composition. Vegetative basal cover was calculated to be 17% in 1988, which is a significant increase over the 7.5% cover found in 1982. Percent litter cover declined slightly, but percent bare ground stayed about the same. Trend for soil is slightly up with the increase in frequency of grasses and forbs. The browse trend is up for the key species mountain big sagebrush. The number of mature shrubs actually declined from 2,200 plants/acre to 1,400. However, the number of young increased from 333 plants/acre to 15,200 indicating a young expanding population. Dwarf and low rabbitbrush populations follow the same general trend. Trend for herbaceous species is also up. Quadrat frequency of grasses and forbs has doubled since 1982.

TREND ASSESSMENT

soil - slightly up (4)

browse - up with abundant seedlings and young (5)

herbaceous understory - up (5)

1995 TREND ASSESSMENT

Ground cover characteristics have remained similar to those of 1988. The biggest difference is in the decline in percent litter cover, which has occurred statewide with the extended drought. Trend for soil is stable. Trend for browse is still up for the key species, mountain big sagebrush. Total density has declined since 1988, however the number of mature plants has increased from 1,400 to 4,920 plants/acre. Seedlings and young are still abundant while percent decadence is only 1%. Use is light and vigor is good. Dwarf rabbitbrush displays a similar trend. Quadrat frequency of grasses and forbs doubled between 1982 and 1988. Since 1988, sum of nested frequency of grasses has declined while that of forbs has increased. Overall, sum of nested frequency of grasses and forbs combined has remained stable.

TREND ASSESSMENT

soil - stable (3)

browse - up (5)

herbaceous understory - stable; slightly down for grasses and up for forbs (3)

2000 TREND ASSESSMENT

Trend for soil is slightly down with percent cover of bare ground increasing. Also, the ratio of protective ground cover to bare soil decreased due to a decline in nested frequency of herbaceous plants and an increase in nested frequency for bare soil. There is also evidence of overland water flow occurring with many of the shrub interspaces being bare. Trend for browse is stable. The key species, mountain big sagebrush, increased in percent decadency from 1% to 15%, however this increase is within reasonable limits for sagebrush.

Recruitment remains high at 29%, vigor is good, and use remains light to moderate. Trend for grasses is stable, but down for forbs with the large decrease in sum of nested frequency for perennials forbs due to drought. Overall, trend is slightly down for the herbaceous understory.

TREND ASSESSMENT

soil - slightly down (2)

browse - stable (3)

herbaceous understory - slightly down overall (2); stable for grasses and down for forbs

HERBACEOUS TRENDS --

Herd unit 10 , Study no: 5

Type	Species	Nested Frequency			Quadrat Frequency				Average Cover %	
		'88	'95	'00	'82	'88	'95	'00	'95	'00
G	Agropyron dasystachyum	_b 195	_a 131	_a 147	50	73	59	60	.78	.84
G	Carex spp.	_b 52	_a 11	_a 4	2	26	6	1	.05	.00
G	Koeleria cristata	_b 159	_a 115	_a 79	55	65	42	33	1.95	.84
G	Poa fendleriana	126	135	154	40	47	50	59	1.93	2.50
G	Poa nevadensis	_a -	_a -	_b 25	38	-	-	11	-	.35
G	Poa pratensis	-	1	-	-	-	1	-	.00	-
G	Poa secunda	142	120	130	-	57	44	57	1.89	1.56
G	Stipa comata	73	75	55	-	32	26	21	.60	.64
G	Stipa lettermani	-	-	-	1	-	-	-	-	-
Total for Annual Grasses		0	0	0	0	0	0	0	0	0
Total for Perennial Grasses		747	588	594	184	300	228	242	7.23	6.75
Total for Grasses		747	588	594	184	300	228	242	7.23	6.75
F	Agoseris glauca	_a -	_b 6	_{ab} 2	-	-	4	2	.02	.04
F	Allium spp.	-	2	-	-	-	1	-	.00	-
F	Antennaria rosea	_b 203	_b 163	_a 102	45	73	63	44	4.20	1.38
F	Androsace septentrionalis (a)	-	79	10	-	-	37	5	.23	.20
F	Arabis drummondi	_a -	_b 10	_a 2	-	-	5	1	.02	.00
F	Astragalus convallarius	5	15	15	-	3	7	6	.18	.10
F	Aster spp.	_b 92	_b 77	_a 41	10	30	29	15	.87	.27
F	Astragalus spp.	12	31	28	6	9	13	11	.60	.42
F	Astragalus utahensis	_a -	_a -	_b 7	-	-	-	4	-	.04
F	Castilleja flava	_{ab} 58	_b 85	_a 39	-	31	38	20	.63	.34
F	Calochortus nuttallii	_a -	_b 17	_a -	-	-	6	-	.03	-
F	Crepis acuminata	_a -	_b 37	_b 33	-	-	16	15	.28	.30
F	Cruciferae	-	3	-	-	-	2	-	.01	-
F	Cryptantha spp.	_b 57	_a -	_a -	4	29	-	-	-	-

Type	Species	Nested Frequency			Quadrat Frequency				Average Cover %	
		'88	'95	'00	'82	'88	'95	'00	'95	'00
F	<i>Delphinium nuttallianum</i>	a ⁻	b ⁶¹	a ¹	-	-	33	1	.19	.00
F	<i>Eriogonum alatum</i>	a ⁻	b ¹⁴	b ²¹	4	-	7	10	.08	.11
F	<i>Erigeron eatonii</i>	b ¹⁴⁵	a ⁸⁴	a ⁸⁸	47	66	37	44	1.25	.60
F	<i>Eriogonum racemosum</i>	1	-	-	-	1	-	-	-	-
F	<i>Eriogonum umbellatum</i>	18	24	27	-	12	15	14	.39	.26
F	<i>Ipomopsis aggregata</i>	1	5	-	-	1	3	-	.06	-
F	<i>Lappula occidentalis</i> (a)	-	-	3	-	-	-	1	-	.00
F	<i>Lesquerella ludoviciana</i>	a ¹⁹	b ⁶²	b ⁶⁵	12	10	25	34	.83	.29
F	<i>Linum lewisii</i>	7	5	12	-	4	3	6	.04	.08
F	<i>Lomatium</i> spp.	-	6	-	-	-	2	-	.01	-
F	<i>Lupinus argenteus</i>	49	60	43	5	26	30	24	1.40	.74
F	<i>Lygodesmia</i> spp.	-	-	1	-	-	-	1	-	.00
F	<i>Machaeranthera</i> spp.	-	-	-	8	-	-	-	-	-
F	<i>Orthocarpus</i> spp. (a)	-	1	1	-	-	1	1	.00	.03
F	<i>Penstemon caespitosus</i>	3	3	6	-	1	3	2	.09	.15
F	<i>Penstemon</i> spp.	15	6	10	2	6	2	5	.04	.10
F	<i>Phlox austromontana</i>	b ⁵²	b ⁶⁰	a ⁻	15	22	25	-	1.10	-
F	<i>Phlox longifolia</i>	44	50	101	2	24	25	41	.18	1.68
F	<i>Polygonum douglasii</i> (a)	a ⁻	b ²²⁷	a ⁻	-	-	77	-	.80	-
F	<i>Potentilla gracilis</i>	-	3	4	-	-	2	2	.18	.06
F	<i>Senecio integerrimus</i>	a ⁻	b ²⁹	a ¹	-	-	14	1	.07	.00
F	<i>Sedum lanceolatum</i>	4	5	11	-	1	2	4	.03	.02
F	<i>Senecio multilobatus</i>	-	5	2	-	-	3	1	.01	.00
F	<i>Sphaeralcea coccinea</i>	7	2	-	3	3	1	-	.00	-
F	<i>Taraxacum officinale</i>	b ²⁰	a ¹²	a ⁴	1	12	5	3	.42	.04
F	<i>Tragopogon dubius</i>	-	-	3	-	-	-	1	-	.03
Total for Annual Forbs		0	307	14	0	0	115	7	1.04	0.23
Total for Perennial Forbs		812	942	669	164	364	421	312	13.27	7.16
Total for Forbs		812	1249	683	164	364	536	319	14.32	7.39

Values with different subscript letters are significantly different at $\alpha = 0.10$ (annuals excluded)

BROWSE TRENDS --

Herd unit 10 , Study no: 5

T y p e	Species	Strip Frequency		Average Cover %	
		'95	'00	'95	'00
B	Artemisia tridentata vaseyana	95	99	16.11	20.49
B	Chrysothamnus depressus	60	66	3.34	1.88
B	Chrysothamnus nauseosus	1	0	-	-
B	Chrysothamnus viscidiflorus	17	11	.02	.18
B	Gutierrezia sarothrae	8	5	.21	.03
B	Juniperus osteosperma	0	2	.48	.94
B	Pediocactus simpsonii	1	3	.00	-
B	Pinus edulis	0	2	-	.03
B	Symphoricarpos oreophilus	1	2	.38	.30
Total for Browse		183	190	20.54	23.87

BASIC COVER --

Herd unit 10 , Study no: 5

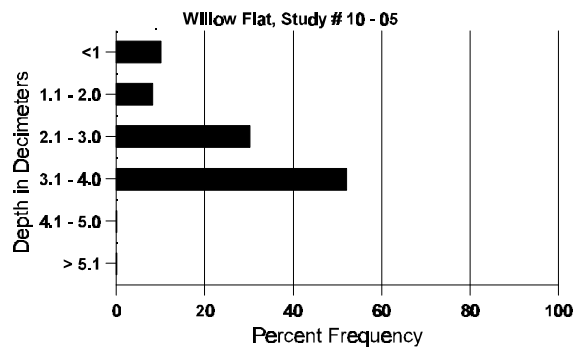
Cover Type	Nested Frequency		Average Cover %			
	'95	'00	'82	'88	'95	'00
Vegetation	360	329	7.50	16.75	40.15	39.23
Rock	68	5	0	0	.66	.04
Pavement	99	80	0	0	.34	.66
Litter	389	347	53.50	46.75	34.04	34.51
Cryptogams	157	111	.75	1.50	3.01	3.45
Bare Ground	327	352	38.25	35.00	34.59	53.58

SOIL ANALYSIS DATA --

Herd Unit 10, Study # 5, Study Name: Willow Flat

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
12.83	52.4 (15.04)	7.1	30.0	40.0	30.0	2.3	1.8	204.8	0.8

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 10 , Study no: 5

Type	Quadrat Frequency	
	'95	'00
Rabbit	3	9
Elk	14	20
Deer	7	6
Cattle	-	2

Pellet Transect	
Pellet Groups per Acre	Days Use per Acre (ha)
00	00
287	N/A
418	32 (79)
78	6 (15)
96	8 (20)

BROWSE CHARACTERISTICS --

Herd unit 10 , Study no: 5

Artemisia tridentata vaseyana																		
A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
S	82	78	-	-	-	-	-	-	-	-	78	-	-	-	5200		78	
	88	20	-	-	-	-	-	-	-	-	20	-	-	-	1333		20	
	95	68	-	-	13	-	-	-	-	-	81	-	-	-	1620		81	
	00	30	-	-	-	-	-	-	-	-	30	-	-	-	600		30	
Y	82	5	-	-	-	-	-	-	-	-	5	-	-	-	333		5	
	88	210	6	-	2	-	-	10	-	-	225	-	3	-	15200		228	
	95	189	-	-	2	-	-	-	-	-	191	-	-	-	3820		191	
	00	130	13	-	1	-	-	3	-	-	147	-	-	-	2940		147	
M	82	23	10	-	-	-	-	-	-	-	33	-	-	-	2200	24 17	33	
	88	17	4	-	-	-	-	-	-	-	21	-	-	-	1400	30 22	21	
	95	209	37	-	-	-	-	-	-	-	246	-	-	-	4920	25 28	246	
	00	199	53	2	16	9	-	-	-	-	279	-	-	-	5580	24 28	279	
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	3	-	-	-	-	-	-	-	-	3	-	-	-	200		3	
	95	2	1	2	-	-	-	-	-	-	4	-	-	1	100		5	
	00	35	29	-	7	6	-	-	-	-	75	-	1	1	1540		77	
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	260		13	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	300		15	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'82			26%			00%			+85%							
		'88			04%			00%			-47%							
		'95			09%			.45%			+12%							
		'00			22%			.39%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	2533	Dec:	0%			
												'88	16800		1%			
												'95	8840		1%			
												'00	10060		15%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Chrysothamnus depressus																	
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	88	8	-	-	-	-	-	-	-	-	-	-	-	-	533		8
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	00	3	-	-	-	-	-	-	-	-	-	-	-	-	60		3
Y	82	13	-	-	-	-	-	-	-	-	13	-	-	-	866		13
	88	55	12	-	1	-	-	1	-	-	69	-	-	-	4600		69
	95	34	-	-	-	-	-	-	-	-	34	-	-	-	680		34
	00	26	-	-	1	-	-	-	-	-	27	-	-	-	540		27
M	82	119	22	5	-	-	-	-	-	-	146	-	-	-	9733	4 9	146
	88	11	20	14	1	1	-	-	-	-	45	-	2	-	3133	4 6	47
	95	227	-	-	8	-	-	-	-	-	235	-	-	-	4700	5 7	235
	00	174	31	-	14	-	-	-	-	-	219	-	-	-	4380	3 8	219
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	88	13	6	9	-	-	-	-	-	-	20	-	6	2	1866		28
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1
	00	19	2	-	-	-	-	-	-	-	13	-	-	8	420		21
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	60		3
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	160		8
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
'82		14%			03%			00%			- 9%						
'88		27%			16%			07%			-44%						
'95		00%			00%			00%			- 1%						
'00		12%			00%			03%									
Total Plants/Acre (excluding Dead & Seedlings)												'82	10599	Dec:	0%		
												'88	9599		19%		
												'95	5400		0%		
												'00	5340		8%		
Chrysothamnus nauseosus																	
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
'82		00%			00%			00%									
'88		00%			00%			00%									
'95		00%			00%			00%									
'00		00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-		
												'88	0		-		
												'95	20		-		
												'00	0		-		

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches)		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4		Ht.	Cr.	
Chrysanthamnus viscidiflorus																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	2	4	-	1	-	-	-	-	-	-	7	-	-	466		7	
	95	2	-	-	-	-	-	-	-	-	-	2	-	-	40		2	
	00	1	-	-	-	-	-	-	-	-	-	1	-	-	20		1	
M	82	8	10	-	-	-	-	-	-	-	-	17	1	-	1200	9	12	
	88	-	-	3	-	-	-	-	-	-	-	3	-	-	200	8	6	
	95	23	-	-	-	-	-	-	-	-	-	23	-	-	460	8	11	
	00	11	-	-	1	-	-	-	-	-	-	12	-	-	240	7	8	
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	1	-	1	-	-	-	-	-	-	-	2	-	-	133		2	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	3	-	-	-	-	-	-	-	-	-	3	-	-	60		3	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		56%			00%			00%			-33%							
'88		33%			33%			00%			-37%							
'95		00%			00%			00%			-36%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	1200	Dec:	0%			
												'88	799		17%			
												'95	500		0%			
												'00	320		19%			
Gutierrezia sarothrae																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	3	-	-	-	-	-	-	-	-	-	3	-	-	60		3	
	00	1	-	-	-	-	-	-	-	-	-	1	-	-	20		1	
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	88	2	-	-	-	-	-	-	-	-	-	2	-	-	133	5	1	
	95	15	-	-	-	-	-	-	-	-	-	15	-	-	300	6	7	
	00	5	-	-	-	-	-	-	-	-	-	5	-	-	100	4	3	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%			+63%							
'95		00%			00%			00%			-67%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	133		-			
												'95	360		-			
												'00	120		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.			Total
		1	2	3	4	5	6	7	8	9	1	2	3	4					
Juniperus osteosperma																			
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	00	1	-	-	-	-	-	-	1	-	-	2	-	-	40			2	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>								
'82		00%			00%			00%											
'88		00%			00%			00%											
'95		00%			00%			00%											
'00		00%			00%			00%											
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-				
												'88	0		-				
												'95	0		-				
												'00	40		-				
Peraphyllum ramosissimum																			
M	82	2	-	-	-	-	-	-	-	-	2	-	-	-	133	30	32	2	
	88	-	-	1	-	-	-	-	-	-	1	-	-	-	66	28	37	1	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	19	21	0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	19	24	0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>								
'82		00%			00%			00%			-50%								
'88		00%			100%			00%											
'95		00%			00%			00%											
'00		00%			00%			00%											
Total Plants/Acre (excluding Dead & Seedlings)												'82	133	Dec:	-				
												'88	66		-				
												'95	0		-				
												'00	0		-				
Pediocactus simpsonii																			
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2	
M	82	1	-	-	-	-	-	-	-	-	1	-	-	-	66	1	2	1	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	-	1	
	00	-	-	-	1	-	-	-	-	-	1	-	-	-	20	-	-	1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>								
'82		00%			00%			00%											
'88		00%			00%			00%											
'95		00%			00%			00%			+67%								
'00		00%			00%			00%											
Total Plants/Acre (excluding Dead & Seedlings)												'82	66	Dec:	-				
												'88	0		-				
												'95	20		-				
												'00	60		-				

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Pinus edulis																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	1	-	-	-	-	-	-	1	-	-	-	-	-	40		2	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	0		-			
												'00	40		-			
Symphoricarpos oreophilus																		
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20	14	35	
	00	2	-	-	1	-	-	-	-	-	3	-	-	-	60	-	3	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			00%			00%			+67%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	20		-			
												'00	60		-			
Tetradymia canescens																		
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	1	-	-	-	-	-	-	1	-	-	-	66		1	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			100%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	0%			
												'88	66		100%			
												'95	0		0%			
												'00	0		0%			